

UTAH: rock crevices, Provo, June 16, 1902, *L. N. Gooding* no. 1114; Big Cottonwood Canyon, Lake Solitude, June 30, 1905, *Rydberg* and *Carlton* no. 6529; Cottonwood Canyon, Salt Lake Co., August 14, 1905, *A. O. Garrett* no. 1610; City Creek Canyon, July 11, 1885, *F. E. Leonard*; Peterson Canyon, Wahsatch Mts., 10,000 ft. altitude, July 19, 1902, *Pammel* and *Blackwood* no. 3844; Alta, Wahsatch Mts., 9000 ft. altitude, July 31, 1879, *Marcus E. Jones*, no. 1118; Cottonwood Canyon, 9000 ft. altitude, July, 1869, *Sereno Watson*.

OREGON: Union Co., 1877, *N. C. Cusick*.

CAMBRIDGE, MASS.

The Male Fern in Vermont

E. J. WINSLOW

On the 19th of last July, in company with Prof. E. A. Shaw, of Norwich University, I discovered an extensive growth of Male Fern on Paine Mt. in the town of Northfield, Vt. About two weeks later, on August 6th, I returned to Northfield with Mr. C. H. Bissell and we then made a more complete survey of this station.

Paine Mt. is a level ridge 2600 ft. in elevation, extending in a north and south direction, covered at the summit with recent growth forest except a portion of the south end of the ridge and a clearing extending from this point down the western slope and rapidly widening out into extensive pastures. The rock is slatey and further down toward Northfield village are several abandoned slate quarries.

At this cleared south end among the rocks and bushes and scattered through the neighboring thickets the Male Fern is vigorous and abundant and from there it continues down the slope in a general northwesterly

direction along the edge of the forest, filling all the clearings and skirting the wood roads but avoiding both the deep shade and the open field, for a distance of a mile or more and down to about the 2000 foot level.

This is the sixth station for the Male Fern to be discovered in Vermont, all within the past eleven years. It is many times more extensive than any of the earlier stations, several hundred feet higher in elevation and carries the range about 25 miles further north into Washington County. The area covered, which must exceed 20 acres, and the apparent age of some of the plants render it highly probable that the fern has inhabited this hill from primeval time; although land at the lower end of the station has been cleared and settled for a century or more.

The Male Fern was first discovered in Vermont by Miss Nancy Darling, who, in September, 1905, found a group of about a dozen plants in the town of Hartland, in the shade of poplar and maple trees at an elevation of about 1200 feet, and quite near the road. Outcropping ledges in the vicinity are described as mica schist.

Mrs. Mabel Strong Heseltine discovered the fern in the southern part of Woodstock in August, 1906. She writes, "The station is in a partially open spot, evidently an old-time wood road and in spring a water course, shaded by butternuts and other hard wood trees of large size. On the right and on the left there is a dense growth of maple saplings, but no ferns beyond the partially open ground." The locality is further described as crowning a pasture hill and having a northern exposure. The number of plants in this station, is given as one hundred or more, and the elevation is nearly 2000 feet.

The Bridgewater station, also discovered by Mrs. Heseltine in 1909, is largely in the highway. The plants

are plentifully scattered along both sides of the road for a number of rods. The elevation is about 1500 feet.

Miss F. E. Corne discovered the fourth station in the southern part of Barnard in 1911. According to reports by Miss Corne and Mr. Rugg, who has visited the station, there are forty or fifty plants on a southeast slope at an elevation of 1700 feet or more, and shaded by butternut trees.

These four discoveries were made in adjacent towns of Windsor County. But in October, 1913, Mr. D. L. Dutton and Mr. George Kirk found a number of plants in Brandon; thus locating it west of the Green Mountain range in Rutland County. The Brandon station has an elevation of only about 1000 feet, but it is in a cold ravine with *Dryopteris dilatata*. The rock is limestone.

This familiar wayside fern of the Old World is confined in eastern North America to the higher latitudes and apparently comes to the southern limit of its range in Vermont as a sub-alpine species, thriving best in the high pastures and thickets, and when it escapes to lower altitudes choosing cool situations. To the fact that it does occasionally migrate to lower levels, and to the more important fact that amateur botanists have within recent years come to give particular attention to ferns we owe its early discovery in Windsor County.

The discoveries above described have been made by accident or in the course of general botanizing, but when the Male Fern is hunted for with its particular habits in mind it seems fairly certain that extensive growths will be found in the higher hills of Woodstock or Bridgewater, whence the fern has spread to the known stations. Also in the mountains just east of the Brandon station, and in fact anywhere among the higher hills throughout the state, and throughout the length of the Province of Quebec, in the northern Adirondacks and

perhaps in New Hampshire and northern Maine, it should be looked for with reasonable chance of success.

It seems to have no very marked soil preference. Mr. Alexander Cowan, of Scotland, writes me regarding its habit in that country, "*L. filix-mas*—grows equally well in different soils and in shade or sun," but later he adds, "if growing in shade they prefer light overhead—that is, shaded only from the direct rays of the sun." This describes very well the habit of the fern in Vermont.

The hybrid *D. filix-mas* \times *marginalis* has been found in three of the earlier Vermont stations for the Male Fern, and at Northfield it is very abundant.

The ferns seen in Northfield and vicinity make a list of 34 species, including the *Ophioglossaceae*, and including *Woodsia ilvensis*, which Prof. Shaw has recently added to the list. Some of the more interesting are: *Botrychium angustisegmentum* and *Asplenium Trichomanes* collected in the neighboring town of Roxbury; *Ophioglossum vulgatum*, abundant and varied in some of the wet pastures; *Polystichum Braunii*, in rich woods mostly below 2000 feet; *Dryopteris Goldiana*, very abundant in some localities and sometimes accompanied by *Athyrium angustifolium*. The Polypod was seen but once, on a ledge near the river shore. The hillside pastures are very wet and springy and the Ostrich Fern grows well up to the 2000 foot line.

AUBURNDALE, MASS.

Notes and News

CONCERNING *POLYSTICHUM ACROSTICHOIDES*, FORM *LANCEOLATUM*. The other day, in looking over a file of the *Fern Bulletin*, I came across Prof. Clute's description of this form (in Vol. 20, p. 24) and was at once reminded of a queer Christmas fern which I had found in Bloomfield, Conn., in 1908. My specimens have